

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-14 (cancelled)

Claim 15 (previously presented): A travel safety device for a vehicle comprising:

an object detecting unit which detects an object existing in a traveling direction of the vehicle;

a correlation calculating unit which calculates a correlation involving a distance between the vehicle and the object based on a detection result of the object detecting unit;

a safety unit including an automatic brake unit which automatically decelerates the vehicle and a seatbelt device including an electric motor which automatically tightens the seatbelt and releases the tightening thereof; and

a safety device operation control unit which determines a possibility of contact between the vehicle and the object based on the correlation calculated by the correlation calculating unit, and, when it is predicted that there is a possibility of contact, simultaneously actuates the automatic brake unit and seatbelt device,

wherein the safety device operation control unit is constructed so that, when

the distance between the vehicle and the object enters a predetermined range based on the correlation calculated by the correlation calculating unit, the automatic brake unit causes generation of a deceleration to a degree which is capable of allowing the occupant to recognize that a braking force has been generated, and the seatbelt device alternates between tightening and releasing the seatbelt,

when such a state is maintained for a predetermined period of time, where the distance between the vehicle and the object enters a predetermined range, an even higher degree of deceleration is generated by the automatic brake unit, and the seatbelt device causes the seatbelt to be fixed in its stopped state for at least a predetermined period of time after the seatbelt is tightened,

in a tightening operation of the seatbelt, a current value of the electric motor is temporarily increased by setting the current limit to a predetermined initial limit value for a predetermined initial time immediately after rotation of the electric motor is commenced to remove slack in the seatbelt, and the current limit thereafter is set to a predetermined limit value which is lower than the initial limit value to lower the current value, and the tension of the predetermined value is generated for the seatbelt.

Claim 16 (previously presented): A travel safety device for a vehicle comprising:

an object detecting unit which detects an object existing in a traveling direction of the vehicle;

a correlation calculating unit which calculates a correlation involving a distance between the vehicle and the object based on a detection result of the object

detecting unit;

a safety unit including an automatic brake unit which automatically decelerates the vehicle and a seatbelt device which automatically tightens the seatbelt and releases the tightening thereof;

a braking operation detecting unit which detects a braking operation carried out by a driver;

a vehicle speed detecting unit which detects the speed of the vehicle; and

a safety device operation control unit which determines a possibility of contact between the vehicle and the object based on the correlation calculated by the correlation calculating unit, and, when it is predicted that there is a possibility of contact, simultaneously actuates the automatic brake unit and seatbelt device,

wherein the safety device operation control unit is constructed so that, when the distance between the vehicle and the object enters a predetermined range based on the correlation calculated by the correlation calculating unit, the automatic brake unit causes generation of a deceleration to a degree which is capable of allowing the occupant to recognize that a braking force has been generated, and the seatbelt device alternates between tightening and releasing of the seatbelt,

when such a state is maintained for a predetermined period of time, where the distance between the vehicle and the object enters a predetermined range, an even higher degree of deceleration is generated by the automatic brake unit, and the seatbelt device causes the seatbelt to be fixed in its stopped state for at least a predetermined period of time after the seatbelt is tightened,

the seatbelt fixed in its stopped state by the seatbelt device is released in at least one of the states where it is detected based on a detection result of the braking

operation detecting unit that a braking operation is released after the braking operation is carried out by a driver and where it is detected based on a detection result of the vehicle speed detecting unit that the vehicle stops.

Claim 17 (previously presented): A travel safety device for a vehicle comprising:

- an object detecting unit which detects an object existing in a traveling direction of the vehicle;

- a correlation calculating unit which calculates a correlation involving a distance between the vehicle and the object based on a detection result of the object detecting unit;

- a safety unit including an automatic brake unit which automatically decelerates the vehicle, a seatbelt device which automatically tightens the seatbelt and releases the tightening thereof, and airbag devices;

- a collision sensor which detects a collision of the vehicle; and

- a safety device operation control unit which determines a possibility of contact between the vehicle and the object based on the correlation calculated by the correlation calculating unit, and, when it is predicted that there is a possibility of contact, simultaneously actuates the automatic brake unit and seatbelt device,

- wherein the automatic brake unit is constructed so as to be capable of decelerating the vehicle in a plurality of different deceleration patterns, and the seatbelt device is constructed so as to be capable of tightening and releasing the seatbelt in a plurality of different operation patterns,

- wherein the safety device operation control unit is constructed so that, when

the distance between the vehicle and the object enters a predetermined range based on the correlation calculated by the correlation calculating unit, the automatic brake unit causes generation of a deceleration to a degree which is capable of allowing the occupant to recognize that a braking force has been generated, and the seatbelt device alternates between tightening and releasing the seatbelt,

when such a state is maintained for a predetermined period of time, where the distance between the vehicle and the object enters a predetermined range, an even higher degree of deceleration is generated by the automatic brake unit, and the seatbelt device causes the seatbelt to be fixed in its stopped state for at least a predetermined period of time after the seatbelt is tightened, and

actuates the airbag devices when the collision sensor detects the collision of the vehicle.